REMARKS/ARGUMENTS

With this Amendment, Applicant amends claims 1, 10, 16, 17 and 20 and cancels claim 11 without prejudice or disclaimer. Applicant also adds new claims 21-23. No new matter is added. Therefore, claims 1-10 and 12-23 are all the claims currently pending in the application. Based on the foregoing amendments and the following remarks, Applicant requests reconsideration and allowance of the claims.

I. Rejection of Claims 1-11 & 16-17 Under 35 U.S.C. § 102(e)

Claims 1-11 and 16-17 are rejected under 35 U.S.C. § 102(e) as being allegedly anticipated by Mantravadi et al. (U.S. Patent Appln. Publn. No. 2005/0068918; hereinafter "Mantravadi").

Claim 1, as herein amended requires, *inter alia*, a communication system having "a first mapper ... for mapping the first representations of the first portion of the communication data into *first mapped values* according to a first mapping scheme" and "a second mapper ... for mapping the second representations of the communication data into *second mapped values* according to a second mapping scheme ..." wherein the first mapper *transmits the first mapped values* to a first antenna transducer among a plurality of antenna transducers and wherein the second mapper *transmits the second mapped values* to a second antenna transducer among the plurality of antenna transducers, the first and second antenna transducers *receive and* transduce *only* the first mapped values and the second mapped values, respectively, into electromagnetic form ..."

Applicant submits that Mantravadi does not teach or suggest at least the above recitations of amended claim 1. In rejecting claim 1, the Examiner alleges that the base data stream of Mantravadi corresponds to the claimed first portion of the communication data and alleges that the enhanced data stream of Mantravadi corresponds to the claimed second portion of the communication data. Additionally, the Examiner alleges that modulator 416a corresponds to the claimed first mapper and that modulator 416b of Mantravadi corresponds to the claimed second mapper. (See pgs. 2-3 of the Office Action) Even assuming *arguendo* that Mantravadi discloses

a modulator 416a which modulates data according to one modulation scheme and a modulator 416b which modulates data according to a different modulating scheme as suggested by the Examiner, Mantravadi still does not teach or suggest all of the features of claim 1.

In contrast to claim 1, Mantravadi relates to techniques for performing hierarchical coding in a multi-antenna communication system. Paragraph [0111] of Mantravadi describes that processor 420a performs spatial processing on data symbols $\{s_b\}$ for the base data stream $\{d_b\}$ "and provides two symbol substreams for the two transmit antennas" 324a, 324b. (emphasis added) Additionally, paragraph [0111] of Mantravadi describes that processor 420b performs spatial processing on data symbols {se} for the enhancement data stream $\{d_e\}$ "and provides two symbol substreams for the two transmit antennas" 324a, 324b. (emphasis added) Mantravadi explains that combiner 440 receives and combines the two symbol substreams for the base stream $\{s_b\}$ and the enhancement stream $\{s_e\}$ in order to obtain two transmit symbol streams $\{x_1\}$ and $\{x_2\}$ that are provided to transmitter units 322a, 322b respectively.

Based on the foregoing, Mantravadi, at best, discloses that transmit symbol stream $\{x_1\}$ which is provided to antenna 324a contains both data symbols for base stream $\{s_b\}$ and data symbols for enhancement stream $\{s_e\}$. Similarly, transmit symbol stream $\{x_2\}$ that is provided to antenna 324b contains both data symbols for base stream $\{s_b\}$ and data symbols for enhancement stream $\{s_e\}$. (See FIG. 4A of Mantravadi)

Additionally, paragraph [0186] of Mantravadi discloses that base data symbol stream $\{s_b\}$ and enhancement data symbol stream $\{s_e\}$ "are multiplexed in time" by processors 510 and 530, respectively. (See FIG. 6B of Mantravadi) According to Mantravadi, processor 510 obtains two space-time diversity (STTD) "encoded symbol substreams $\{s'_{b1}\}$ and $\{s'_{b2}\}$" that are provided to combiner 440a. Similarly, processor 530 receives and demultiplexes data symbols $\{s_e\}$ for enhancement stream into two data symbol substreams $\{s_{e1}\}$ and $\{s_{e2}\}$ that are provided to combiner 440a. As can be seen in FIG. 6B of Mantravadi, combiner 440a receives and combines substreams $\{s'_{b1}\}$ and $\{s_{e1}\}$ (via Mux 540a) to generate transmit symbol stream $\{x_1\}$ which is provided to transmit antenna 324a. (See FIG. 4A of Mantravadi) Also as shown in FIG. 6B of Mantravadi, combiner 440a receives and combines substreams $\{s'_{b2}\}$ and $\{s_{e1}\}$ (via

Mux 540b) to generate transmit symbol stream $\{x_2\}$ which is provided to transmit antenna 324b. (See FIG. 4A of Mantravadi)

As demonstrated above, Mantravadi, at best, discloses that transmit symbol stream $\{x_1\}$ which is provided to antenna 324a contains both data symbols for base stream $\{s_b\}$ and data symbols for enhancement stream $\{s_e\}$. Likewise, transmit symbol stream $\{x_2\}$ which is provided to antenna 324b contains both data symbols for base stream $\{s_b\}$ and data symbols for enhancement stream $\{s_e\}$.

Paragraph [0208] of Mantravadi further discloses that processor 510 processes data symbols $\{s_b\}$ for the base stream to obtain two STTD encoded symbol substreams $\{s'_{b1}\}$ and $\{s'_{b2}\}$ which are provided to combiner 440a and that processor 530 receives and processes data symbols $\{s_{e1}\}$ and $\{s_{e2}\}$ that are provided to combiner 440a. As can be seen in FIG. 6D of Mantravadi, combiner 440b combines a scaled substream $\{s'_{b1}\}$ with scaled substream $\{s_{e1}\}$ to obtain transmit symbol stream $\{x_1\}$ and combines scaled substream $\{s'_{b2}\}$ with scaled substream $\{s_{e2}\}$ to obtain transmit symbol stream $\{x_2\}$.

In rejecting claim 1, Applicant notes that the Examiner does not specifically point out what corresponds to the claimed first mapped values and the claimed second mapped values. To the extent that the Examiner is suggesting that the modulator 416a (alleged first mapper) maps base data stream $\{d_b\}$ into data symbol stream $\{s_b\}$ and that the data symbol stream $\{s_b\}$ corresponds to the claimed first mapped values and assuming *arguendo* that the Examiner is suggesting that the modulator 416b (alleged second mapper) maps enhancement data stream $\{d_e\}$ into data symbol stream $\{s_e\}$ and that data symbol stream $\{s_e\}$ corresponds to the claimed second mapped values, Mantravadi still does not teach or suggest all of the features of claim 1. Rather, in view of the foregoing disclosure, Mantravadi, at best, discloses that data symbols for base stream $\{s_b\}$ and data symbols for enhancement stream $\{s_e\}$ are combined in the form of transmit symbol streams $\{x_1\}$ and $\{x_2\}$ which are sent by combiner 440 (e.g. 440a) to a respective one of transmit antennas 324a and 324b, as discussed above. As such, Mantravadi fails to teach or suggest that modulator 416a (alleged first mapper) transmits only the data symbols for the base stream $\{s_b\}$ to transmit antenna 324a, (one of the alleged plurality of antenna transducers) as required by claim 1. Mantravadi is also incapable of teaching or suggesting that modulator 416b

(alleged second mapper) transmits only the data symbols for the enhancement stream $\{s_e\}$ to transmit antenna 324b (one of the alleged plurality of antenna transducers), as required claim 1. The interrelationship of claim elements is simply not met by Mantravadi. Applicant notes that in rejecting claim 1, the Examiner correctly concedes that the antennas 324a, 324b of Mantravadi "each [receive] a combination of the base data stream and the enhanced data (x sub 1 and x sub 2) stream for transmission." (See pg. 3 of the Office Action) (emphasis added) As such, Mantravadi does not teach or suggest that transmit antenna 324a receives and transduces only the data symbols for the base stream $\{s_b\}$ and Mantravadi also does not teach or suggest that transmit antenna 324b receives and transduces only the data symbols for the enhancement stream $\{s_e\}$, as required by claim 1.

For at least the foregoing reasons, Mantravadi fails to teach or suggest at least "a communication system ... wherein the first mapper transmits *the first mapped values* to *a first antenna transducer* among a plurality of antenna transducers and wherein the second mapper transmits *the second mapped values* to *a second antenna transducer* among the plurality of antenna transducers, the first and second antenna transducers *receive* and transduce *only* the first mapped values and the second mapped values, *respectively* ...," as required by claim 1. Applicant also notes that Mantravadi discloses that the combiner 440 of TX Spatial Processor 320 transmits symbol streams $\{x_1\}$ and $\{x_2\}$ to respective ones of transmit antennas 324a, 324b. Given that the combiner 440 of TX Spatial Processor 320 transmits symbol streams $\{x_1\}$ and $\{x_2\}$ to respective ones of transmit antennas 324a, 324b, Mantravadi does not teach or suggest that the modulators 416a, 416b (alleged first mapper and second mapper) transmit the data symbols for base stream $\{s_b\}$ and data symbols for enhancement stream $\{s_e\}$ to respective ones of transmit antennas 324a, 324b, as required by claim 1. (See FIGS. 4A, 6B and 6D of Mantravadi) Applicant therefore respectfully requests the Examiner to reconsider and withdraw the § 102(e) rejection of claim 1 and its dependent claims 2-15.

Since claim 16 contains features that are analogous to, though not necessarily coextensive with, the features recited in claim 1, Applicant submits that claim 16 and its dependent claims 17-20 are patentable at least for reasons analogous to those submitted for claim 1.

II. Rejection of Claims 12-15 & 18-20 Under 35 U.S.C. § 103(a)

Claims 12-15 and 18-20 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Mantravadi in view of Ketchum (U.S. Patent No. 6,731,668; hereinafter "Ketchum"). Applicant respectfully traverses this rejection for at least the following reasons.

As discussed above, Mantravadi is deficient vis-à-vis independent claims 1 and 16, and Ketchum does not make up for the deficiencies of Mantravadi. Accordingly claims 12-15 and 18-20 are patentable at least by virtue of their respective dependencies from claims 1 and 16. Applicant therefore respectfully requests the Examiner to reconsider and withdraw the § 103(a) rejection of dependent claims 12-15 and 18-20.

III. New Claims

Applicant has added new claims 21-23 to more fully cover various aspects of Applicant's invention as disclosed in the specification. Applicant respectfully submits that claims 21-23 should be allowable because the cited references do not teach or suggest the recitations of these claims.

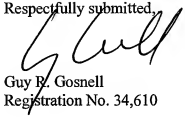
IV. Conclusion

In view of the foregoing remarks, Applicant respectfully submits that all of the claims of the present application are in condition for allowance. It is respectfully requested that a Notice of Allowance be issued in due course. Examiner Dean is encouraged to contact Applicant's undersigned attorney to resolve any remaining issues in order to expedite examination of the present application.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required

therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,



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